

THE PREVALENCE OF ORAL MUCOSAL LESIONS IN CHILDREN: A SINGLE CENTER STUDY

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ABSTRACT

Purpose: Studies regarding oral health are mainly conducted on adult population and there is a lack of epidemiologic data on the oral health of children. The purpose of this study was to evaluate the prevalence and distribution of oral lesions in Turkish children. **Materials and Methods:** A cross-sectional survey was carried out on total of 1041 Turkish children attended by the outpatient Oral Medicine and Surgery Department of İstanbul University. **Results:** Examinations were performed and 277 of whom had a total of more than 30 different type of lesions detected. The fissured tongue (3.4%) was the most frequent lesion, followed by traumatic lesions (3.2%) and the cheek biting (2.5%). **Conclusions:** This is the first study in Turkey on oral lesions in this age group. We hope that our study will be a baseline data for future studies and for sure there is a need for more good-quality epidemiological studies in this area.

Keywords: Oral mucosal lesions; pediatric population; epidemiology

ÖZ

Amaç: Oral sağlık ile ilgili çalışmalar genel olarak erişkin popülasyonuna odaklanmış olup, çocukların oral sağlığı ile ilgili epidemiyolojik verilerde eksiklik söz konusudur. Bu çalışmanın amacı ülkemizde çocuklarda görülen oral lezyonların sıklığı ve dağılımını değerlendirmektir.

Gereç ve Yöntem: Bu kesitsel incelemede İstanbul Üniversitesi Diş Hekimliği Fakültesi Ağız, Diş Çene Cerrahisi Anabilim Dalı kliniklerinde muayene olmak için başvuran gönüllü 1041 çocuk yer almıştır. Yapılan muayenelerde 302 dan fazla tipte toplam 277 oral lezyon tespit edilmiştir.

Bulgular: Fissürlü dil (%3.4) en sık görülen lezyon olup bunu travmatik lezyonlar (%3.2) ve yanak ısırma (%2.5) takip etmiştir.

Sonuç: Çalışmamız bu yaş grubunda ülkemizde yapılmış olan ilk çalışma olma özelliğindedir. Kesinlikle bu alanda yüksek kalitede epidemiyolojik çalışmalara ihtiyaç vardır ve umudumuz ileri epidemiyolojik çalışmalar için bu çalışmanın bir temel oluşturması yönündedir.

Anahtar kelimeler: Oral mukozal lezyonlar; pediatric popülasyon; epidemiyoloji



Introduction

Oral health is the entire health of the teeth, mucosal areas, periodontal tissues and tongue. The concept of oral and dental health is mostly being perceived to be limited to carious teeth and periodontal diseases by both clinicians and academics. Based on this view, diseases of oral mucosal areas are generally ignored by dental practitioners. Current researches mainly focused on a single lesion or include lesions in a single anatomical area (1, 2). Moreover there are even fewer studies in pediatric population about oral mucosal lesions (1, 3).

Despite World Health Organization's (WHO) reports supporting epidemiological studies, there is little number of researches about oral mucosal lesions and these have many problems about ensuring standardization. There are some differences in diagnostic criteria and methodology of these studies. Moreover, the differences in geographic region where the study was conducted and racial differences may also affect the results (4). The aim of this study to determinate the incidence of oral mucosal lesions in pediatric patients (ages between 0-13 years) who applied to our clinic for deciduous teeth extraction and to calculate the distribution of these lesions.

Materials and Methods

Our study includes 1041 voluntary children who applied to Department of Oral Surgery and Medicine in Istanbul University Faculty of Dentistry for deciduous teeth extraction between February and August in 2006. Examination of the patients was performed under the light of reflector with the help of mirrors and presel. Informed consent was taken from the parents or from the relatives of the child. Clinical and medical histories had been noted according to the information given by family members or parents. As well as intra-oral examination findings of the patients, information about tooth brushing, and the bad habits such as thumb sucking, bruxism, and socioeconomic status had been noted by filling a survey. In all assessments, children were compared by dividing the age groups in to two as preschool age of 0 to 6 years and school age of 7 to 13 years. Diagnosis of oral mucosal lesions was based on WHO criteria (5). The study was conducted by four researchers, and all diagnoses were confirmed by an expert again. Statistical analyses were performed using the SPSS software package (revision 11.5 SPSS Inc., Chicago,

IL, U.S.A.). Differences in the distribution of oral mucosal lesions between selected groups were tested using the Chi-square test. Fisher exact test was used if the number in any cell of the 2 X 2 contingency table was less than 5. Values of $p < 0.05$ were considered statistically significant.

Results

The study was conducted on 1041 children including 492 girls and 552 boys. Children were examined in two groups, preschool age (0-6 age group, $n = 181$) and school age (7-13 age group, $n = 860$). The mean age (\pm standard deviation) of all children was 8.76 ± 2.13 (range between 1 and 13). In total, 277 of whom had a total of more than 30 different type of lesions were detected. All these lesions were classified under 23 headings as shown in Table I. In the distribution by gender, it was determined that 44.8% ($n = 124$) of girls and 55.2% of boys ($n = 153$) had oral lesion. There was no significant difference in the incidence of oral lesions between the genders. The presence of oral lesions by gender and age groups were evaluated in Table II. 70.4% of children who had oral mucosal lesions in preschool ages had no history of any systemic disease, and this rate was 68.9% in school aged children. It was determined that 29.6% of preschool aged children and 30.4% of school aged children had medical history of diseases such as heart disease, allergies and frequent infections. Since the risk of infectious diseases is higher in environments where the children coexist, it was investigated that whether the children was attending to kindergarten in pre-school ages. It was determined that of children with oral mucosal lesions in preschool ages, 30.3% was attending to the kindergarten and 69.7% was looked after at home. In our study, no significant correlation was found between tooth-brushing habit and the incidence of oral mucosal lesions, and it was determined that 23.9% of children never brushed their teeth, and only 27.5% of children had regular tooth brushing habit. Tooth brushing habits was found to be increased with the school period. In query, questions about various parafunctional habits were asked, and it was determined that any of parafunctional habits had significant effects on the incidence of oral mucosal lesions. Finger-sucking habit was detected in 4.6% of children in our study group, and it was reported that 3.1% of them is still continuing the habit. Incidence of this habit in school-age children decreased, but this decrease was not statistically significant.

Table 1. Distribution of oral mucosal alterations according to age groups.

Mucosal Alterations	Age groups		Age groups		Total	
	0-6 *	Prevalance(%)	7-13*	Prevalance(%)	%/n	Prevalance(%)
Geographic tongue	3/1.08	0.28	15/4.1	1.44	18/6.49	1.72
Recurrent aphthous lesions	1/0.36	0.09	23/8.3	2.2	24/8.66	2.3
Fordyce granules	0		6/2.16	14.63	6/2.16	1.46
Fissured tongue	3/1.08	0.28	32/11.55	3.07	35/12.63	3.36
Mucosal burns			2/0.72	0.19	2/0.72	0.19
Pseudomembranous Candidiasis	3/1.08	0.28	11/3.97	1.05	14/5.05	1.34
Recurrent herpes	4/1.44	0.38	14/5.05	1.34	18/6.49	1.72
Primer herpetic gingivostomatitis	2/0.72	0.19	3/1.08	0.28	5/1.8	0.48
Travmatic lesions	9/3.24	0.86	24/8.66	2.3	33/11.91	3.17
Comissural lip pits	0		5/1.8	0.48	5/1.8	0.48
Vasculer lesions	1/0.36	0.09	0		1/0.36	0.09
Cheilitis	0		3/1.08	0.28	3/1.08	0.28
Cheek biting	2/0.72	0.19	24/8.66	2.3	33/11.91	3.17
Melanotic macule	0		6/2.16	0.57	6/2.16	0.48
Eruption cyst	2/0.72	0.19	6/2.16	0.57	8/2.88	0.76
Atrophic candidiasis	1/0.36	0.09	6/2.16	0.57	7/2.52	0.67
Mucocele	1/0.36	0.09	9/3.24	0.86	10/3.61	0.96
Alveolar cyst	0		4/1.44	0.38	4/1.44	0.38
Cleft/palate lip	6/2.16	0.57	12/4.33	1.15	18/6.49	1.72
Psoriasis	0		1/0.36	0.09	1/0.36	0.09
Dentoalveolar abcess	2/0.72	0.19	20/7.22	1.92	22/7.94	2.11
Gingival fibrous nodüle	2/0.72	0.19	9/3.24	0.86	11/3.97	1.05
Total	42/15.16	4.03	235/84.83	22.57	277/100	26.60

*years

Table 2. Oral mucosal lesions according to age group and gender.

		Mucosal lesions	Present	Absent	Total	
Age Group	0-6*	N	42	116	158	
		%	26.6	73.4	100	
	7-13*	N	235	648	883	
		%	26.6	73.4	100	
			P	0.993		
	Gender	Female	N	124	366	490
%			25.3	74.7	100	
Male		N	153	398	551	
		%	27.8	72.2	100	
		P	0.37			
Total		N	277	764	1041	
	%	26.6	73.4	100		

*years

Nail biting habit was detected in 14.4% of children in our study group, and it was found that 13.3% of them were still continuing the habit. The incidence of nail biting habit showed no significant difference between age groups. In our study, questions about bruxism were asked and 10.3% (n = 107) of 1041 children had been determined to have this habit. The incidence is not different between age groups. In the evaluation between income groups, bruxism showed a statistically significant (p = 0.021) increase in the middle and lower income group. When parents were asked the to explain their income levels, 50.2% counted themselves in lower income group whereas 47.3% in middle-income group and 2.5% in of high-income group. It was found that 41.1% of families are tenant, 58.9% owned a home, and 55.5% of children had a separate room.

The occupational status of the mothers of children who participated in our study, it was determined as; 80.1% was a housewife and 19.9% was working and only 4.4% of the working group was high-educated. When we look at the occupational status of fathers of children who participated in our study, 0.6% is unemployed, 23.1% is workers, 63.7% is medium-educated civil servants, 11.9% is highly educated professionals, and the remaining 0.8% is children from the nursing houses who do not know about their father's occupation.

Discussion

Single center studies are not accepted as very successful indicatives in epidemiologic studies since the samples are from restricted areas and do not include datas to form generalization. Still İstanbul University Faculty of Dentistry has a special place as the first dental school in Turkey and has more than 300 outpatients every day and in the Oral Surgery and Medicine clinics 30 children per day is attending approximately as outpatients. The data in this survey was collected in about a 6 month period from volunteers whom were about one third of total number of patients.

The most prevalent oral lesion (in fact a normal variant) in our study group was fissured tongue followed by traumatic lesion and cheek biting. The different results have been reported in many epidemiological studies. In Brazil, in the study including 2356 children and investigating oral lesions, it was determined that tongue diseases were found to have the lowest rate among oral lesions (4). On the other hand, In a Spanish study, coated tongue was determined to be the most common oral mucosal lesion (6).

Fissured tongue is the most common oral mucosal lesion in our study population with the rate of 3.36%. In the examination of the tongue, it is pulled toward forward and bended down with the help of a buffer.

There are a lot of fissures on the tongue where bacteria can easily adhere in. Mucosa between the clefts is intact. This condition does not require any treatment. Optimum level of oral hygiene is necessary to maintain the health of the mucous membrane of the tongue (7). Different rates have been reported in different regions of the world. For example, it was reported that this rate is 0.6% in a study conducted in North Africa (8) and 27.7% in another study conducted in Brazil (4). In a study of Banoczy *et al.* (9) investigating the tongue lesions in adults, fissured tongue had the first place with the rate of 18.52%. In a study of Bessa *et al.* (10) including children, they were reported that incidence of fissured tongue is higher than that of children with a history of allergies and extra-oral congenital anomalies. This condition supports the view that the lesion may show familial transmission. In our study, 35 children had fissured tongue with equal gender distribution, and allergy history of 17.1% of these children was noted.

Increase in incidence of fissured tongue which may be seen together with or without geographic tongue in advanced ages, and higher incidence of geographic tongue in young age's draws attention (9). Similar results were found in the study of Darwazeh *et al.* (1) including general population that was conducted in Jordan. Higher incidence of fissured tongue in older age has led to the idea that characteristic features of the disease are being noticeable with development (4). On the other hand, some researchers advocate the view that there is a correlation between fissured tongue and geographic tongue (9, 11). In the study of Sedano *et al.* (12) including children, they have formed the study groups as fissured tongue group, and the group of fissured tongue coexisting with geographic tongue. It was found that fissured tongue has higher incidence in individuals with geographic tongue. This investigations lead to the controversies whether there is a genetic correlation between the lesions (4, 12).

In our study, the number of fissured tongue coexisting with geographic tongue was found to be 6. In children with fissured tongue ($n = 35$), mean age is 9.63 ± 1.97 , and mean age of children with geographic tongue ($n = 18$) was determined to be 7.83 ± 1.79 , therefore it is not consistent with the literature which says geographic language has higher incidence in young ages. Benevides *et al.* (11), were found that the incidence of fissured tongue in men was higher than that of women. In our study, 54.3% of children with fissured tongue were males and 45.7% were

females, and our results seem to support mentioned study. The geographic tongue can be seen in any age group. It is an inflammatory condition occurring with desquamation of filiform papillae in one or more areas on the dorsum or lateral sides of the tongue. There is often an improvement in a margin of a lesion and a proliferation at other side concurrently, therefore the lesion has an appearance of spread on the tongue (6).

In our study, the incidence of geographic tongue is 1.72%. Sedano *et al.* (12) reported that, this rate as 2%, including school-age children in Mexico. In the study of Garcia-Polo *et al.* (6) the reported incidence is 4.48%. In a study including the children between the ages of 0 to 12 in Brazil, the incidence of geographic tongue was reported to be 9.08% (10). In the study of Rahamimoff and Muhsam (13), a total of 1246 children out of 8305, including 775 children under the age of 2, were found to have geographic tongue. The incidence of geographic tongue in the study is 15%. In the study of Bezerra *et al.* (14) including children between the ages of 0 to 5 in Brazil, this rate is 21%. Especially the last two literatures indicate that the geographic tongue is more frequently seen in the early years. In parallel to this view, in the study of Bessa *et al.* (10) including children aged between 0 to 4 years, the incidence of geographic tongue is determined to be higher. It is advocated that the onset of geographic tongue is mostly seen in childhood (6-12 months old), and it is most frequently seen between the ages of 4 to 4.5 (4). In our study, when we compare the age groups, there is no statistical difference between age groups.

There are many causes of traumatic ulcerations in the mouth. These can be classified as physical, chemical, thermal, and radial (7). Sharp-edged teeth or restorations, rough fillings or habits such as cheek biting, hardly tooth brushing, burns due to the high temperature causes traumas (15). Especially in children, as a result of biting the lip due to the numbness following the mandibular anesthesia, larger traumatic ulcerations may usually occur on lower lip (7). A lot of chemicals and drugs can cause chemical irritation of the tissues inside the mouth. Many of these substances are caustic. Aspirin, sodium perborate, hydrogen peroxide and alcohol are some of these substances. Clinical features and history are important in the diagnosis of all traumatic lesions. The treatment strategy is based on the removal of the etiologic traumatic factor (7). In our study, traumatic lesions were the second most common oral mucosal lesion with the rate of 3.17%. In a study of Benevides

et al. (11) which was conducted in Brazil, incidence of traumatic lesions is 6%, and in the study conducted by Garcia-Pola *et al.* (6), this rate is in second place with the rate of 22.15%. In a study which was conducted by Al-Mobeeriek A. *et al.* (16) including 2552 patients between the age of 15 to 73 in 3-year period, rate of traumatic lesions is in 3rd place. However, similar to our findings, this rate is 2.5% in the study of Arendorf *et al.* (8) in South Africa and 2.23% in the study conducted by Bessa *et al.* (10) in Brazil. In a study conducted by Crivelli *et al.* (17) including 846 patients in Argentina, this rate was determined to be 1.41%. In the study of Kleiman *et al.* (3) in USA, this ratio (0.09%) is very low. When the correlation between traumatic lesions and age is observed, in most of the studies, the incidence of traumatic lesion was decreased with increasing age (3, 4, 10). With the comparison between the age groups in our study, there is a statistically significant increase in traumatic lesions in school-age children ($p < 0.049$).

Mucosal burns are encountered within traumatic lesions in other studies therefore data can not be compared but considered to be important and separately evaluated. Mechanical trauma, as well as chemical, electrical, or thermal insults, may cause mucosal burn. The major injuries in children include electrical and/or thermal burns of the lips and commissure areas. Extensive ulcerations with necrosis may develop. With ulcerations induced by mechanical trauma or thermal burns from food, remove the obvious cause. These lesions typically resolve within 10-14 days (18). Patients with oral electrical burns are usually referred to burn centers (19). Incidence of mucosal burns is 0.19% in our study population.

Chronic biting is often seen in the buccal mucosa. At the level of chewing plane; superficial, irregular, whitish thin layers with erosions are seen (7). Treatment is to recommend to giving up the habit and psychotherapy may be helpful for this purpose (7, 15). Cheek biting is the third most common lesion in our study, and the incidence is 2.49%. In a Spanish study, the rate of cheek and lip-biting ranges between 1.6% and 10.6% (4). In the study of Bessa *et al.* (10) including 1211 patients between the ages of 0-12 years in Brazil, the rate of cheek biting is in second place with the rate of 6.11%. In the same study, it was reported that cheek biting was more frequent in children aged between 5-12 years. The reason for this is the ongoing disorder of occlusal stability due to and permanent teeth and the use

of orthodontic equipment. When we compared the incidence of cheek biting by age-groups, the lesion showed statistically significant increase in school-age children ($p=0.03$). In a majority of the studies, cheek bites were evaluated within traumatic lesions (6, 10, 11). Recurrent aphthous stomatitis (RAS) is one of the most common oral diseases. Despite intensive researches, the definite etiology could not be found, but there is genetic predisposition, with strong associations with interleukin genotypes, and sometimes a family history (20). Approximately 50% of women and 40% of men experienced the aphthous stomatitis 2 or more times throughout their lives (7). The RAS begins during childhood and adolescence, and is seen clinically in 3 forms; minor, major and herpetiform aphtas. Minor RAS is the most common type (21). In our study the incidence of recurrent aphthous stomatitis is 2.3%. The other studies with children in the literature, this ratio was found to be 1.57% in Brazil (10) and 4.08% in Spain (6). And the rate was found to be 10.87% in the study conducted by Crivelli *et al.* (17) in Argentina. When we evaluated the correlation between socioeconomic status and the RAS in Argentinean study, the rate is 19% in school at the region with higher socioeconomic status, and this rate is 12% in the school at the region with low socioeconomic status (17). In the study conducted by Bessa *et al.* (10), there was no significant correlation between socioeconomic status and the RAS. In our study, except one the children, all of the children with the RAS are included in the middle and lower income group. However, because the number of children in high-income group is relatively low ($n=26$), it is a statistically insignificant difference ($p > 0.05$).

Acute dentoalveolar abscess is often caused by the transformation of a granuloma into acute form. Primarily, they are caused by getting the instruments out of the the apex during endodontic therapies or shimmy irritation of used drugs and bacterial invasion. Chronic dentoalveolar abscesses are accepted as the consequence of acute abscesses, or a reaction of the periapical tissue against the mild irritations from pulp (22).

The incidence of dentoalveolar abscess is 2.11% in our study. This rate is 2.33% in the study of Garcia Pola *et al.* (6) including 343 and 1.1% in the study of Arendorf *et al.* (8) including 1051 patients which are similar to our findings. On the other hand in the study of Benevides *et al.* (11) including 587 patients in Brazil, incidence reported to be 0.3%. The comparison between age groups, gender and income

levels had no statistically significant differences. They are sebaceous glands or sebaceous choristomas in the mucosa of the mouth. These particules which are encountered in the mucosa of lips and especially of cheeks may be encountered in mucosa of genital organs such as penis, vulva (7). Incidence of Fordyce granules is 1.46% in our study population. The rate of 1.74% reported in Spain is compatible with our results (6), the results of two different study in Brazil have been reported to be 0.33% and 3.8% (10, 11). In a study conducted in India, a higher incidence is determined with the rate of 6.55%, it should be considered that the age range of the study mainly covers adulthood ages (between ages of 20-80) (23).

The most common type of candidiasis is pseudomembranous. Disease begins with the formation a swelling or ulcer anywhere in the mouth. The lesions are white, soft, sometimes milk foam appearance of gelatinous plaques. This disease can occur at any age, but it is mainly disease of children and the elders (7). Incidence of pseudomembranous candidiasis is 1.34% in our study population. In atrophic candidiasis clinical appearance is characterized by atrophic, painful, erythematous mucosa. There is a decrease in amount of papilla on surface of tongue. Small vesicles and erosions can be seen in severe cases. In addition, cheilitis and median rhomboid glossitis is diagnosed in lip corners. *C.albicans* is present in both patient's serum and saliva (24). The incidence in our study population is 0.67%.

Herpes simplex virus (HSV) infections are characterized by vesicles on skin and mucosal surfaces (25). HSV type 1 is a virus that is seen all over the world and only affects the humans. In present studies, it was reported that the incidence is increased from childhood to youth age, and higher in low socioeconomic status groups (26). Because of distribution of income levels of families who participated in our study is not uniform, such this determination will not be very useful. However, in our study, incidence of recurrent herpetic stomatitis in high level of income group is 3.8% (n = 1) and 1.7% (n = 17) in middle-low income group. No significant difference was found between the age groups ($p > 0.05$).

Overall incidence of recurrent herpes was 1.72% in our study. Primary herpetic gingivostomatitis is the acute condition that can be seen when first encounter with herpes virus. Characterized by vesiculoulcerative lesions of oral and perioral tissues and usually seen between the ages of 6 months to

6 years (15). The lesions heal without sequelae within a week or ten-day (8, 27). The incidence of primary herpetic gingivostomatitis is 0.48% in our study population. No significant difference was found between the age groups ($p > 0.05$). Commissural lip pits are developmental anomalies limited to the epithelium. Drug treatment is not necessary. They can be seen as part of a syndrome Van der woud (28). The incidence of commissural lip pits is 0.48% in our study population. Higher rates were reported in all other studies (8, 10, 17), the racial differences may be considered to be effective in these rates because it is a developmental abnormality. The most common types of vascular lesions in children are lymphangiomas and hemangiomas. Hemangioma is a developmental disorder resulting from benign proliferation in blood vessels (15). Lymphangioma has similar histologic and etiologic characteristics with hemangioma. It is commonly seen with tongue. They both play a role in the development of congenital macroglossia (29). There was a single case of vascular lesion in our study population is a lymphangioma and the incidence is 0.09%.

Cheilitis is clinically is characterized by the lesions which are a few mm in lengths and extending from the corners of the mouth to the cheeks. Erosions, ulcerations and fissures occur over the time (7). The etiology is thought to include low vertical size, mechanical trauma, *Candida albicans*, *Staphylococcus* and *Streptococcus* infections, iron deficiency anemia and riboflavin deficiency (15). Incidence of cheilitis in our study population is 0.28%. Melanotic macule is generally defined as small pigmented macules which are 1-5 mm in diameter but not exceeds 1 cm and surrounded by skin with normal appearance. Their numbers can range between a few and thousands and can be located on palms, soles and mucosal surfaces at anywhere on the body. Sometimes, the surfaces may show desquamation (30). The incidence of melanotic macules is 0.57% in our study population.

Eruption cysts are seen in the dentition period of deciduous and or permanent teeth. It is a soft tissue cyst originating from the epithelium of enamel organ after the development of the enamel. Reason for the accumulation of tissue fluid or blood is the ongoing expansion of the follicular weight around the tooth crown (14). Incidence of eruption cyst is 0.76% in our study population. Mucoceles are lesions which originated from minor salivary glands or their ducts and common in the oral cavity (15). Local trauma is in the first place among the etiological factors and the

treatment is surgery (1). The incidence of mucocele is 0.96% in our study population. Alveolar cysts are pathological formations of epithelial tissues located within the bone or soft tissue and filled with cyst fluid (31). Incidence of alveolar cyst is 0.38% in our study population. Cleft lip and palate are among the most common congenital malformations of head and neck region. 50% of patients with cleft lip has cleft palate at the same time. Although an additional anomaly is not observed in the majority of the affected patients, there can be concomitant congenital malformations (3). The incidence of cleft lip and palate is 1.72% in our study population. Psoriasis is a chronic dermatosis which is characterized by relapses and recurrences, and with the incidence of %1-3 in Turkish population. Despite intensive research, the etiology of the disease is not fully known (32). Incidence of psoriasis is 0.09% in our study population. Gingival fibrosis nodules are situations similar to asymptomatic nodule which is seen along the mucogingival border of lip. It is histologically characterized by accumulation of dense connective tissue. It should be differentiated from reactive and neoplastic lesions. Treatment is not required (31). Incidence of gingival fibrosis nodule is 1.05% in our study population.

Conclusion

In conclusion, this study is the first study conducted in this age group in Turkey. However, because our study includes the children from a single health center, the results can be differ from the results of actual population. On the other hand, the presence of a variety of oral mucosal lesions in this age group in this study should encourage the physicians to perform oral mucosal examinations carefully and to attach importance to the treatment of these lesions. We wish our study to compensate the lacking of epidemiological studies and to become a basis for future studies.

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Conflict of interest

None declared

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